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ABSTRACT

The aim of this document is to provide an alternative for those teacher educators who are committed to the development of professional competence in teaching but who find the present Competency/Performance Based Teacher Education (C/PBTE) approach to be unsatisfactory in certain significant respects. It is proposed to replace the popularized C/PBTE concept by a set of interrelated concepts which include (a) the concept of a profession; (b) a comprehensive classification of teaching action; (c) the concept of professional competence; and (d) the concept of teaching as a problem-solving enterprise. The constructions, analyses, and illustrations are resolved into four parts. Part One, The Concept of Professional Competence in Teaching, establishes the conceptual framework on which to hang the practical aspects of teacher preparation and assessment. In Part Two, Significant Competencies for Professional Teachers, criteria are established for building "competencies." Part Three, Development of Professional Competence in Teaching, is concerned with the practical problems of building and improving professional teacher preparation courses or programs. In Part Four, Assessment of Professional Competence in Teaching, the "explantory" approach to assessment of professional competence is proposed and analyzed from the validity and reliability viewpoints. Practical suggestions are made for utilizing the explanatory approach. (Authors/JD)

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Performance-Based Teacher Education Project
AACTE

DEVELOPMENT AND ASSESSMENT OF PROFESSIONAL COMPETENCE IN TEACHING

Illustrated With Reference to Pre-Service Preparation

by

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August 1973

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FOREWORD

To be associated with the authors of this publication is indeed a stimulating professional as well as a pleasant personal experience. I am deeply indebted to them for this most creative contribution to the field of teacher education and I believe the teaching profession will join me in an expression of appreciation before very long.

In many respects the work is a continuation of the AACTE-TEAM Project I directed in 1963-65. Readers with long tenure in teacher education will recall the major omission in "A Proposal for the Revision of the Pre-Service Professional Component of a Program of Teacher Education" was an adequate conceptual basis and classification system, even though areas such as the study of teaching, teaching competencies and professionalism were included in the monograph. In retrospect, I find it very hard to explain how and why the concepts of rational action, professional action, and improvement, used in this report have eluded those of us who have worked in the area of teacher education curriculum. The simple statement that it is a different way of thinking is hardly gratifying.

The creation of this material was and is not free of problems. At several different points there was a temptation to try some other approach. Others were seemingly making more progress by taking a "teacher role" or "good teacher attribute" approach; and some, at first glance, were experiencing success through the separation of existing courses into modules. Our expectations for substantial help from the elementary models program were far from fulfilled. There were times when continuation seemed to be a confrontation with the impossible.

The professional component, as well as the other components, of the

teacher education program will continue to experience extreme difficulty until a workable conceptual basis has been created and generally accepted. The discipline and profession cannot advance significantly by either chance or highly independent and discrete activities. Simplistic solutions can at best be only temporary and may or may not make any contribution in the years ahead.

I commend this work to the scholars in teacher education and sincerely hope they will give it the serious study it deserves.

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AIM AND SCOPE

The movement labeled *competency/performance-based teacher education* (*C/PBTE*) originated as a result of burgeoning social problems, political pressure, criticism of teacher education, and availability of systems methods that are apparently efficient for training technicians and for managing a wide range of complex enterprises. Strong support from various federal and state agencies, in conjunction with some politically potent schools of education and professional organizations, has encouraged wide-scale construction of teacher education programs under the C/PBTE concept.

There are, however, many well-informed and professionally-committed teacher educators who have not subscribed to the C/PBTE approach. Although dedicated to substantive improvement of education for professionally competent teachers, they have little confidence in the claim that the C/PBTE approach provides the grounds for such improvement.

The aim of this document is to provide an alternative for those teacher educators committed to the development of professional competence in teaching, but who find the present C/PBTE approach to be unsatisfactory in certain significant respects.

There seem to be reasonable grounds for questioning certain aspects of the C/PBTE perspective. Crucial weaknesses of the C/PBTE concept, for example, have been identified by Harry Broudy, in his *Critique of Performance-Based Teacher Education*. Professor Broudy effectively demonstrated the inadequacy of the C/PBTE concept as grounds for the education of teachers as *professionals*, while acknowledging its possible utility for training teachers as *technicians*. He rejected, for example, the notion that *professional*

teaching can be judged as a set of "overt performances that a teacher should be able to execute on demand" as proposed under C/PBTE. This conclusion was based on the complex interrelatedness of all aspects of professional action; that is, the occasion when an act may - or must - be performed and the way in which the act ought to be performed depends upon the curricular context, the way in which previous acts have been performed, the professional values, and so forth. Professor Broudy also argued that C/PBTE ignores the necessity of developing the theoretical frameworks that are fundamental to professional enterprise. Although a number of proponents of the C/PBTE approach -- e.g. Benjamin Rosner, William Drummond, Richard Hersh, and Lewis Sinatra -- have attempted to refute Professor Broudy's lines of reason, the results of such attempts have been to (1) leave the Broudy analyses untouched, and (2) provide evidence of considerable inconsistency in meaning and application of the C/PBTE concept.

Ordinarily, concepts originate in the professional fields - and in the sciences and other disciplines as well - in somewhat spontaneous circumstances. New concepts often are not deliberately formulated so as to fit into a systematic and comprehensive conceptual framework. It is not surprising that certain inadequacies typically characterize these newly introduced concepts; nor that the recently introduced C/PBTE concept should be unsatisfactory, in certain respects, for preparation of teachers *as professionals*.

To achieve our aim of providing an alternative for those who are serious about professional competence in teaching, we propose to replace the popularized C/PBTE concept by a set of interrelated concepts which include (a) the concept of a *profession*, (b) *a comprehensive classification of teaching*

action, (c) the concept of *professional competence*, and (d) the concept of *teaching as a problem-solving enterprise*. These concepts will be constructed and applied, and their implications illustrated, in a manner designed to provide practical guidance for teaching educators who are sensitive to the significance of the term *professional*.

The constructions, analyses, and illustrations which follow are resolved into four parts. *Part One: The Concept of Professional Competence in Teaching* establishes the conceptual framework on which to hang the practical aspects of teacher preparation and assessment which follow.

In *Part Two: Significant Competencies for Professional Teachers*, criteria are established for building "competence classes" (i.e. "competencies"). These criteria, as well as the proposed competencies and associated explications, have been designed with both practical utility and preservation of the holistic nature of professional endeavor in mind.

Part Three: Development of Professional Competence in Teaching is concerned with the practical problems of building and improving professional teacher preparation courses or programs. The "professional problem" is proposed as a basic curricular unit, its relation to "competency" is clarified, and practical aspects of problem construction are described and illustrated. A variety of professional problems are used as illustrations; these problems have been developed and tested in the context of undergraduate teacher preparation.

In *Part Four: Assessment of Professional Competence in Teaching*, the "explanatory" approach to assessment of professional competence is proposed and analyzed from the validity and reliability viewpoints. Practical suggestions are made for utilizing the explanatory approach.

Every effort has been made to make the following discussions as precise, concise, and simple as possible. The authors have been very careful to guarantee coherence among the various sections. Although extensive clarification and illustration are provided at certain points, only a basic sketch is constructed at other points. This is done because the present document is designed as a practical introduction to a much more comprehensive *paradigm* for professional teaching and teacher education. More complete documentation will be provided in other publications.

Part One

THE CONCEPT OF PROFESSIONAL COMPETENCE IN TEACHING

The Concept of a Profession

Every field distinguished by the label *profession*, where that label is used in a significant sense, is founded upon three interrelated bases: a *pragmatic base*, a *knowledge base*, and a *value base*.

The unique services which are provided by members of the profession, and expected and supported by the society, constitute the *pragmatic base* of a profession. Teachers help pupils achieve educational aims that society values. An adequate representation of the pragmatic base of teaching must include: (a) identification of the pupil population, (b) delineation of the educational aims to be attained, and (c) specification of constraints placed on teacher-pupil relationships.

Members of the profession are able to perform these needed services because they have acquired certain theoretical knowledge and practical techniques which the layman does not possess. This specialized body of knowledge - the "know that" and "know how" of the profession - is called the *knowledge base*. The knowledge base consists of interrelated statements of various kinds; these include definitions, principles, evaluative methods and standards, organizational patterns, strategies, and lines of justification of professional action.

Certain values and ethical standards are needed to guide the professional in the way he goes about performing his services. Statements which indicate its ethical code and professional values constitute the *value base*

of teaching. The ethical base guarantees the quality of professional service and protects the rights and interests of the pupil.

Typically every member of a profession is expected to perform his services in a manner that is consistent with the *pragmatic*, *knowledge*, and *value* bases of his profession. The professional bases constitute necessary grounds for any significant realization of accountability in teaching.

Two Fundamental Postulates of Professional Teaching

Rational action seems to be of critical importance to every sphere of professional activity. This is true in teaching also, where actions must be goal-directed, advance planning is considered necessary, and assessment of goal attainment is normally expected. A teacher will be said to have acted rationally if:

A. The teacher is able to make explicit

(1) the goals of the action;

(2) the procedures which he believes will lead to attainment of the goals;

(3) the standards by which goal attainment will be judged;

and B. The teacher implements both

(1) the intended procedures, and

(2) the intended standards of goal attainment.

The conditions of rational action are so fundamental to fruitful teaching activity that the demand for their fulfillment is encapsulated in the following postulate:

> *Postulate #1: A teacher ought to perform all professional services under the conditions of rational action.*

Moreover, the *intention to improve* its services seems to characterize every significant profession. *Improvement* is realized in two ways: (1) advancement of the bases of the profession and (2) advancement of the bases and ways of action of the individual practitioner. These different aspects of improvement are interrelated, and undergird a second postulate:

> *Postulate #2: Individual teachers, and the teaching profession as a whole, ought to function in a manner such that improvement of services is most likely to occur.*

Although there can be no absolute guarantee that improvement of individual teaching or the corporate profession will occur, it is quite possible to function in a way that incorporates those conditions which are *necessary to* improvement - and which may even make continuing improvement not only possible, but even highly probable.

A Comprehensive Classification of Professional Teaching Action

The Dimensions of Teaching Action

Crucial aspects of teaching have been described in terms of the unique professional bases and two fundamental postulates. A comprehensive delineation of the significant classes of teaching action can be derived from these basic assertions. To carry out such a derivation is the purpose of this section.

Acceptance of *rational action* and *improvement* as obligations entails two kinds of teaching operations. On one hand, the teacher must perform "first order" operations (i.e. *formulation*). That is, the teacher must first formulate some logical structure (e.g. a set of objectives, instructional procedures, evaluative standards, etc.) or some way of action (e.g. communicate with pupils in a certain manner).

On the other hand, the teacher must perform "second-order" operations (i.e. *validation*). That is, he must examine his constructions or ways of action in order to judge whether they were warranted and to identify weaknessess and determine effectiveness. Validation activities can be carried out only after the formulation activities already have been proposed or performed.

Two distinguishable, but interrelated, dimensions of teacher action are suggested by the preceding perspectives:

- *a formulation dimension*

and

- *a validation dimension*

It is possible - and indeed, a frequent occurrence - that adequate formulation and validation activities are carried out without consequent ad-

vancement. Certain additional conditions must be present if the intentions of *Postulate #2* are to be realized. For example, "improvement" entails two distinguishable and ordered states of affairs such that the successor state is preferred over its predecessor. In order to take this - and other - necessary conditions into account in an explicit fashion, a third dimension of teaching action is needed:

· *an improvement dimension*

Further analysis of the proposed dimensions and their interrelationships is necessary at this point.

Analysis of the Formulation Dimension

It will be useful to examine the formulation dimension of teaching action from a different perspective. This dimension can be analyzed into three functionally related categories: *foundations development*, *planning*, and *implementation*.

Under the concept of "profession" developed previously, every decision of the teacher is rooted in the pragmatic, knowledge, or value bases of the teaching profession. As a member of that profession, the teacher must be concerned with the substance and quality of these bases. Only members of a profession are willing, and able, to develop the bases of their own professional enterprise. Such necessary formulative action will be labeled *foundations development*, or simply *"foundational."*

The conditions of rational action require that the teacher formulate goals, relevant courses of action, and standards of assessment. This level of formulative action will be labeled *planning*.

The conditions of rational action also entail deliberate implementation of the intended procedures or courses of action in the context of the teacher - pupil relation. This consideration yields a third distinguishable level of formulative action, which will be labeled *implementation*.

Analysis of the Validation Dimension

The term *validation* is used here as a loose rubric to denote *evaluation*, *explanation*, or *justification*.

Evaluation entails (1) making a value judgment, (2) the presenting of evidence to support the judgment and (3) utilization of values or ethical norms (e.g. value base) as the source of criteria and standards for the judgment. Its purpose is to judge worth or identify weakness of teacher action.

Explanation of teacher action requires one to set forth some generalization which accounts for the action which has been proposed or performed. The purpose of explanation is to provide understanding of events. The fact that one understands why a teacher *does* act in a particular way, however, provides no support for the claim that the teacher *should* act in that way.

Justification of teacher action requires one to set forth a line of reason to support the claim that the teacher action is desirable or acceptable. To justify an act is to defend the claim that the act should be, or should have been, performed. Adequate justification of teacher action ultimately will be grounded in the professional bases.

Analysis of the Improvement Dimension

The ability of any individual professional to improve the quality of his services depends, in part, upon the degree to which the common professional bases have advanced. This advance, in turn, depends upon the collective effort of practitioners operating under the network of common values, principles, aims, problem-solving methodologies, and evaluative standards which are contained in the professional bases.

Only the members of a profession, some of whom may be highly specialized, can be expected to contribute substantially to advancement of the unique professional bases. Consequently, *contributing to the advance of the professional bases* constitutes a significant aspect of the improvement dimension.

It is reasonable to expect that a professional will be able to perceive and resolve problems which are unique to his circumstances, and will be able to utilize new professional knowledge in a manner such that his individual services continue to improve in quality. *Improving individual services,* then, constitutes a second significant aspect of the improvement dimension.

Relationships Among the Formulative, Regulative, and Improvement Dimensions

The various dimensions of teacher action are not separate, but are closely interrelated. Furthermore, the increase in knowledge, the alterations in society, and the shifts in value systems cause the professional bases to change, and all aspects of professional teacher action, therefore, need to be subjected to critical scrutiny and constant modification.

Moreover, unless some member of a profession - or the profession as a whole - wishes to claim infallibility in the judgments made, then every professional must operate under the premise that all professional judgments are fallible; that is, the possibility of weakness or imperfection is present. Under these circumstances, every level of formulative action must be subject to assessment, justification, and efforts toward improvement. That is, both *validation* and *improvement* action must be invoked with reference to all aspects of the three *formulation* levels - the foundations development level, the planning level, and implementation level.

Moreover, the ways of validation and improvement may not themselves lie beyond criticism and advance. Advances of the professional bases will, in turn, lead to perception of weaknesses and consequent modification even of the ways of going about evaluation, explanation, justification, and improvement.

Comprehensive Classification of Teaching Action:
A Summary Statement

Conclusions of the preceding discussion can be encapsulated in the form of the following comprehensive classification schema for teaching action, where the various classes are interrelated in rather complex ways.

FORMULATION ACTION

- *Foundational*
- *Planning*
- *Implementation*

VALIDATION ACTION

- *Explanation*
- *Justification*
- *Evaluation*

IMPROVEMENT ACTION

- *Contributing to advancement of the professional bases*
- *Improving individual services*

Significant classes of professional teaching action frequently have been called "competence areas," or simply "competencies." This popular label will be used in subsequent parts of this document.

The Meaning of Professional Competence in Teaching

We are now in a position to set forth a useful definition of professional competence in teaching. The concept of professional competence entails two essential conditions:

[1] the professional characteristically acts in a manner consistent with the *pragmatic*, *knowledge*, and *value* bases which are unique to his profession;

[2] there exists a defined domain of action that is relevant to the profession and to which the professional bases apply.

The nature of the professional bases of teaching has been clarified. Also, the domain of action to which those bases apply has been defined by the *comprehensive classification of teaching action*. Hence, the following definition of a *professionally competent teacher* is proposed:

Definition: *A professional teacher is competent if, and only if, he characteristically acts in a manner consistent with his professional bases over all relevant classes of teaching action.*

A Note on Education for Professional Competence in Teaching

Fulfillment of the definition of professional competence in teaching ought to be the aim of every program claiming to prepare teachers as professionals. This aim distinguishes programs intending to prepare teachers *as professionals* from those intending to prepare teachers *as technicians*, paraprofessionals, and so forth.

It follows that the program organization of professional teacher education, for which there is a claim of adequacy, must deliberately take

into account all relevant classes of teacher action. It also follows that adequate assessment of teacher performance must deliberately take all classes of teacher action into account, and in a manner which preserves the comprehensive and integrative nature of professional enterprise.

Part Two

SIGNIFICANT COMPETENCIES FOR PROFESSIONAL TEACHERS

Purpose and Organizational Schema

A comprehensive classification of professional teaching action was proposed in *Part One*. The purposes of the present part will be to (1) identify significant sub-classes of teacher action, i.e. identify significant competence areas, or *"competencies"*; and, (2) explicate each competency by describing various ways in which it might be realized by a practicing teacher. Identification of significant competencies, in conjunction with the associated explications, will facilitate practical utilization of the classification schema.

Competencies will be categorized in the following way:

1. *FOUNDATIONAL COMPETENCIES (FORMULATION)*
2. *PLANNING COMPETENCIES (FORMULATION)*
3. *IMPLEMENTATION COMPETENCIES (FORMULATION)*
4. *VALIDATION COMPETENCIES*
5. *IMPROVEMENT COMPETENCIES*

Criteria for Accepting a Proposed Competency

The absence of adequate criteria for acceptance or rejection of proposed professional teaching "competencies" is a cause of great uneasiness among those who take seriously the notion of professionalism in teaching.

The holistic and interrelated nature of professional activity is a matter of crucial concern among these teacher educators. They demand criteria which preserve and give emphasis to the interconnectedness of classes of professional action, the multiplicity of factors bearing on professional decisions, and the relations among intention, premises, and action. Consistent with this perspective, the following criteria for inclusion or exclusion of competencies are proposed:

> [1] *The competency (i.e. competence class) must be either (a) some sub-class of the defined classes of teacher action, or (b) some combination of sub-classes;*
>
> [2] *The competency must specify a class of action unique to teaching;*
>
> [3] *The competency must specify a class of action whose assessment is, in principle, contingent upon the way in which at least some other class of action has been performed.*

The first criterion requires that each competency (i.e. competence class) be relevant to the action domain for which teachers are held accountable.

The second criterion preserves teaching as a professional endeavor. It prevents the reduction of teaching to the technical or paraprofessional level. For example, such broad classes of action such as *developing a curricular goal system*, *justifying curricular rules*, and *implementing an instructional strategy* are unique to teaching; these may be considered for inclusion as professional competencies. Other classes of action, although they may be entailed by particular ways of performing within a competence class of teaching, characterize the ordinary activities of laymen or various sorts of technical and practical endeavors not at all uniquely associated with

teaching. Often quite narrow in scope, these include classes of action of this sort: *threading a film projector, defining terms, asking questions, and rewarding desired behavior.* Such actions are relevant to assessment of professional competence only when they are treated as elements of a complex system of action, intention, and justification; they are relevant only when they occur as elements of the broader classes that are *unique* to teaching.

The third criterion represents an effort to encapsulate the interrelatedness of professional activity when viewed from a somewhat different perspective. Under this perspective, competence classes should be framed in a manner such that the way of performing in one competence class (i.e. competency) will be dependent in part upon performance in other competence classes. For example, if a teacher has accepted a particular code of ethics, then one would expect that his professional behavior in the teacher-pupil relationship would be consistent with the accepted ethical code. Acceptance of a different ethical code ought to lead to different professional behavior in the teacher-pupil relationship.

The foregoing criteria for inclusion have been invoked in framing and explicating the proposed set of competence classes, or *competencies,* which follows. Each competency will be displayed in italics, and will be followed by an explication.

SIGNIFICANT COMPETENCIES FOR PROFESSIONAL TEACHERS

1. *FOUNDATIONAL COMPETENCIES* (*FORMULATION*)

1.1 *Developing the bases of professional teaching:*

- *professional values and ethical norms (Value base),*
- *professional services and constraints (Pragmatic base),*
- *theoretical and technical information unique to teaching (Knowledge base).*

Ways that competence in developing the bases of the teaching profession can be demonstrated include:

- making decisions with reference to acceptance or rejection of professional value statements (norms, codes of ethics, etc.);
- construction at least some aspects of a professional value system or useful code of ethics;
- making decisions as to the professional services that the teacher ought, and is able, to provide;
- judging the status, significance, or conditions of applicability of available theoretical or technical knowledge *unique* to teaching;
- contributing new theoretical or practical knowledge to the publicly communicable and justified information of the knowledge base of teaching;
- ascribing the apparent bases of action of some set of teachers.

1.2 *Selecting relevant information from theoretical or technological foundations (e.g. social sciences, natural sciences, mathematics, humanities, arts, technical fields) and organizing the information for educational purposes.*

Ways that competence can be demonstrated include:

- identifying significant concepts, principles, ways of inquiry, or technique from relevant theoretical or technological fields which should be taken into account for curricular/instructional purposes;
- integrating significant information from theoretical or technical fields into curricular or instructional structures or ways of action.

2. *PLANNING COMPETENCIES (FORMULATION)*

2.1 *Developing interrelated curricular plans, which include:*

- *curricular goals;*
- *assumed state of pupil development;*
- *curricular rules.*

Competence in developing curricular organization includes:

- developing adequate curricular goals which are compatible with assumed pupil characteristics;
- articulating the cognitive, affective, or psychomotor characteristics of pupils which are judged *necessary prerequisites* to fruitful participation under the specified curricular goals and rules;
- constructing curricular rules which prescribe content structure and sequence (i.e. substantive rules) and regulate the teacher-pupil relation, (i.e. regulative rules), and which are compatible with the goals and assumed pupil characteristics.

Note: It is assumed that all aspects of the curricular organization are compatible with the professional bases.

2.2 *Developing interrelated instructional plans, which include:*

- *sets of instructional objectives;*
- *assumptions about pupil states of direct relevance in the instructional context;*
- *instructional strategies appropriate to the pupil state and the instructional objectives.*

Competence in instructional planning includes:

- formulating sets of instructional objectives which are appropriate to the pupil state;
- articulating assumptions about prerequisite concepts, technical language, information, etc., necessary for particular pupils to achieve the instructional objectives---these assumptions constitute, in effect, a partial description of the pupil's curricular history; they may also take into account the pupil's learning strategy;
- constructing instructional strategies which are likely to be effective under the circumstances, i.e. with reference to the instructional objectives and the particular pupil state.

Note: Compatibility with the professional bases and curricular organization is assumed.

2.3 *Developing plans for evaluating the curricular organization and instructional claims.*

Competence in planning for curricular/instructional evaluation is assessed by determining if the teacher characteristically takes into account at least these ways of evaluation:

(1) judgments as to *logical coherence* within and among the various components of the curricular/instructional program;

(2) judgments as to whether the curricular/instructional program is empirically testable *in principle;*

(3) judgments as to the correspondence of occurred outcomes (pupil performance) with expected outcomes (goals);

(4) judgments against other curricular/instructional systems to determine whether the proposed program has sufficient worth to merit empirical trial;

(5) judgments of compatibility of curricular/instructional program components with the pragmatic, knowledge, and value bases of professional teaching.

3. *IMPLEMENTATION COMPETENCIES (FORMULATION)*

3.1 *Arranging the learning environment with reference to its physical, social, and informational aspects.*

In order to implement an instructional strategy or to satisfy curricular ground rules, certain technical or social arrangements must be made. These arrangements often are not explicitly specified within the strategy rules or curricular rules; rather, pragmatic judgments must be made as to what informational resources, spacial and social arrangements, schedules, and so on, will adequately facilitate the curricular/instructional plans. Very frequently, concern for this sort of activity is expressed under such labels as "grouping," "individualizing instruction," team teaching," "open classroom," "independent study," "utilization of educational media," or "classroom management."

3.2 *Communicating with pupils; this takes into account both sending and receiving aspects of communication.*

In order to be judged competent, a teacher would have to demonstrate consistently satisfactory performance in the context of teacher-pupil communication. This area of competence includes both oral and graphic modes of communication.

Adequate performance on the part of a teacher would entail acting in a manner that is consistent with his established curricular and instructional plans, and with his professional bases as well. At least these aspects of the teacher's performance should be examined and judged:

- meaning, coherence, and significance of teacher statements and questions;
- reception of pupil statements and questions by the teacher;
- ways of analysis and evaluation of pupil statements or questions by the teacher;
- consequences of analysis or evaluation by the teacher.

It should be noted that such activities as administering classroom tests, evaluating pupil performance, providing feedback to pupils, and diagnosing pupil difficulty are included within the foregoing aspects of communication.

4. *VALIDATION COMPETENCIES*

4.1 *Justifying or explaining teaching action.*

If a teacher is able to provide sound reasons for acting as he does in the professional context - and consistently does so upon the demand of pupil, parent, colleague, administrator, or layman supporting the teacher's services - then he has demonstrated competence in justifying his teaching action.

Implementation-level action must be justified against curricular/instructional plans or against the professional bases; curricular instructional plans must be justified against the professional bases. It is important to note that unique pupil characteristics and circumstances are fundamental considerations in all aspects of planning and implementation.

At least some members of a profession might be called upon to justify even their professional bases. No fully compelling argument could be given in support of any existing bases; rather, the best one could do would be to construct various lines of reason which collectively would - if sound - contribute to the belief that the bases are well-founded.

To explain a teaching action is to set forth a generalization, or set of generalizations, from which a specific action can be derived through deduction. When these conditions have been realized, then the generalization - or set of generalizations - is said to have provided an *explanation* of the specific action. Usually these generalizations will be drawn from the planning statements or professional bases; under certain circumstances, they might be drawn from the various disciplines or technical fields as well.

4.2 *Evaluating teaching action.*

Teacher action at all three levels - foundational, planning, and implementation - should be subject to evaluation. To *evaluate* is to make a *value judgment* against specified criteria, and supported by evidence. A teacher normally would be expected to evaluate his own professional action; evaluation also ought to be extended to at least the professional action of others which has a bearing on his own.

Competence in evaluating teaching actions includes:

- judging the quality of the justification of the action;
- judging the product of the action against specified conditions of adequacy; e.g. Is a set of instructional objectives internally consistent, testable in principle, etc?
- judging whether pupils attain intended goals.

5. *IMPROVEMENT COMPETENCIES*

5.1 *Contributing to the collective knowledge of the teaching profession; i.e. advancing its pragmatic base, knowledge base, or value base.*

At least *some* members of the teaching profession must assume responsibility for improving the bases which govern the professional action of *all* professional teachers. Some members of the profession may devote major portions of their time to development of structural or substantive aspects of the professional bases. Other members of the profession, including those who devote full-time to classroom teaching, may contribute to improvement of the profession as a whole by conducting their planning and implementation activities in such a way as to provide publicly useful empirical information. Moreover, practitioners who go about their work systematically - and can adequately articulate the grounds for their practical actions - can make significant contributions toward improving even the most fundamental conceptualizations of teaching.

At even a more modest level, it seems reasonable to expect that a teacher would make adequately justified judgments as to proposed changes in the services to be provided, codes of ethics, or ways of evaluating teaching. These judgments and justifications frequently would be made in the context of decision and action by professional organizations.

Competence should be judged on the grounds of consistent contribution in at least some of the aforementioned areas.

5.2 *Improving individual planning, implementing, or regulating action.*

It is reasonable to expect that a teacher who is *professional* in a significant sense, will have the conceptual tools and values which cause him to be characterized by continuing improvement throughout his career. In judging *improvement competence*, these kinds of changes should be taken into account:

- change in ways of organizing curricular goals or ground rules, or describing common pupil characteristics;
- change in ways of building operational objectives, instructional strategies, or framing assumptions about particular pupil states;
- change in ways of organizing evaluative procedures;
- change in ways of arranging the learning environment;
- change in the ways of communicating with pupils;
- change in the ways of justifying, explaining, or evaluating teaching action.

A teacher has *demonstrated competence* in improving his professional action over some specified time interval if these two conditions are satisfied:

[1] at least some distinguishable change of the foregoing types has occurred;

[2] the teacher justifies the change on the basis of some combination of these conditions:

(a) elimination or reduction of weakness identified through evaluation; or

(b) utilization of new, or previously available but not utilized, information from the professional bases; or

(c) utilization of new, or previously available but not utilized, information from the theoretical or technological foundations (e.g. psychology, sociology, sciences, mathematics, linguistics, computer technology, etc.)

Part Three

DEVELOPMENT OF PROFESSIONAL COMPETENCE IN TEACHING

The Scope of Professional Teacher Preparation

The aim of any program claiming to prepare teachers as professionals is to produce teachers who fulfill the concept of 'professional competence in teaching.' A person who fulfills the concept of 'professional competence in teaching' is one who characteristically acts in a manner consistent with the *pragmatic*, *knowledge*, and *value* bases of teaching; and he does so for all classes of teaching action: *formulation* action, *validation* action, and *improvement* action.

That is, graduates of a professional teacher education program should perform adequately in all defined competency areas. It seems reasonable, then, to expect that preparation for professional teaching should be deliberately designed to include every significant class of teaching action; i.e. include every competency class.

Teaching as a Problem-Solving Enterprise

Any problem can be identified in terms of (1) statements which describe some existing state of affairs - i.e., a *data component*; and (2) statements which describe the state of affairs that is desired - i.e. *a goal component*.

One might view professional teaching as an enterprise in problem identification and problem solving. The relevant problems include those whose goals are concerned with formulating, validating or improving the professional

bases; or the curricular organization; or the plans for instruction; or the manner of arranging the learning environment, interacting with the pupil, or diagnosing or evaluating the pupil.

For example, one typical problem of teaching is encountered when the following conditions exist:

Data Component

Datum A: There is a specified instructional objective;

Datum B: The pupil has accepted the objective, but has not yet attained it.

Goal Component

The teacher must devise some course of action which will be effective in influencing the pupil toward attainment of the instructional objective.

A professional teacher will, of course, be continuously engaged in attempts to resolve numerous pressing problems. He will, of necessity, set priorities enabling him to decide where to focus his efforts on any given occasion.

Such problems constitute the basic elements of professional teaching. These basic elements constitute the smallest units into which teaching activity can be analyzed and still remain *professionally functional*. They will be called *professional problems*.

It is illuminating to consider the consequences of an attempt to reduce teaching to the 'atoms' of professional problems. An act such as

'asking a set of higher order questions,' for example, would make no sense when performed in isolation. However, if the act of 'asking a set of higher order questions' were performed in conjunction with other acts of an intentional course of action--devised as a tentative solution to the foregoing type of problem and in the context of particular objectives and a particular pupil state--then, that act may or may not be a justified act. This uncertainty exists because even if 'asking a set of higher order questions' becomes a permissible or obligatory act on the part of the teacher, the manner of its performance is contingent upon the way in which other acts of the course of action are performed. The point is that an elementary act such as 'asking higher order questions,' is not a *professionally functional* act. Such an elementary act has no significance for teaching when standing alone and devoid of context. Elementary acts of this sort are inadequate when used either as basic curricular units for preparing professional teachers or as basic units for assessing competence.

The Professional Problem as a Basic Curricular Unit

It seems reasonable to expect that a competent practicing professional will perform his services in a manner that does not differ in essential respects from the way in which he was taught to perform his services. Conversely, it seems that the manner of preparation for professional service must include the essential aspects of that professional enterprise.

Preparation for professional teaching, for example, should deliberately take into account every significant competency class. Moreover, since professional teaching is viewed as a problem-identification and problem-solving enterprise, then preparatory programs must include professional problems of

relevance to every competency class.

Under the foregoing premises, it seems reasonable that the professional problems of teaching would be appropriate as basic curricular units of teacher preparation. This proposal will acquire greater significance at a later point where the professional problem is also developed as the vehicle for assessing competence.

The Competency-Professional Problem Relation

A concrete example will be useful in illuminating the relation between *competency* and *professional problem*. Consider the following competency and associated professional problem:

COMPETENCY 2.2

Developing interrelated instructional plans, which include:

- *sets of instructional objectives;*
- *assumptions about pupil states of direct relevance in the instructional context;*
- *instructional strategies appropriate to the pupil state and the instructional objectives.*

PROFESSIONAL PROBLEM P[2.2]

PURPOSE: DEVELOPMENT OF ADEQUATE INSTRUCTIONAL PLANS

DATA COMPONENT:

[1] It is assumed that you have accurately described, and accepted, the curricular goals, curricular rules, and common pupil characteristics that constitute constraints under which instructional activities are conducted in your field situation;

[2] There is a specified set of pupils for whom you have accepted instructional responsibility;

[3] Your instructional responsibility is bounded by a specified goal which is compatible with the ongoing curricular/instructional enterprise, and is judged by your supervising teacher to be appropriate to the specified set of pupils.

GOAL COMPONENT:

[1] *Develop a set of instructional objectives* such that the set satisfies these conditions:

a. each statement of the set is framed in *operational* terms;

b. the set of objectives provides a partial explication of the goal;

c. each operational objective is capable of generating an indeterminate number of tasks.

[2] *Set forth a set of statements which describe assumed attributes of the specified pupils.* These statements should satisfy the following conditions:

a. the attributes should be directly relevant to the operational objectives or the strategy statements; for example, important prerequisite concepts, comprehension of technical terms, etc;

b. the statements should be framed in observational terms.

[3] *Formulate an instructional strategy* which you believe is likely to be effective in influencing the pupils to attain of the objectives and where the strategy satisfies these conditions:

a. its statements are internally consistent;

b. it is compatible with the curricular constraints;

c. it is capable of being implemented.

The *competency* merely identifies a generic class of teaching action. In the example under consideration, the generic class of action is *developing instructional plans with reference to* (1) *instructional objectives,* (2) *pupil-state assumptions, and* (3) *instructional strategies.*

The *professional problem* identifies the particular combination of competency classes or sub-classes in which teacher action is demanded, and it does so in operational terms. That is, the *data component* of the problem spells out the relevant circumstances; these are often called "antecedent conditions," "test conditions," or "stimulus conditions." The *goal component* of the problem spells out the kinds of actions to be performed and (perhaps also) the standards of adequate performance; these conditions are often called "consequent conditions," or "response conditions."

The kinds of action specified in the goal component must satisfy the conditions of some combination of competencies. In the example, note that the goal component requires the preparatory teacher to develop (1) *a set of instructional objecties,* (2) *pupil-state assumptions, and* (3) *an instructional strategy* such that the strategy is likely to be effective in influencing the pupils to attain the objectives. That is, the goal-component conditions of the professional problem correspond to the conditions of the specified competency. Resolution of the problem entails individual teacher action belonging to the class of action specified by the competency.

Of course, since a competency merely identifies a generic class of significant teaching action, the concepts of both *competency* and *professional problem* would be empty in the absence of the *professional bases.* The professional bases provide two essential ingredients: (1) the criteria for judging the way in which an act is performed, and (2) the occasions on which a particular class of teacher action *may* be or *must* be performed.

We can now account for the previously unexplained conditions of the illustrative professional problem. First, the criteria attached to each of the three aspects of the goal component are yet to be explained. Note, for example, that the quality of any instructional strategy proposed in response to the problem must be judged against the specified criteria of (a) *internal consistency*, (b) *compatibility with curricular constraints (e.g. curricular goals and rules)*, and (c) *capability of being implemented*. The *pragmatic base*, *knowledge base*, and *value base* of professional teaching constitute the only defensible sources of such criteria.*

The essential condition of the data component, datum [1], requires that the *curricular goals*, *curricular rules*, and *assumed common pupil characteristics* have been previously identified and accepted. These constraints, in conjunction with a particular set of pupils, establish the *context* for instructional planning and implementation. The conceptual framework which yields such conditions of the data component can be provided only by the professional bases. In the particular case at hand, curricular goals and rules, and pupil-state assumptions, are viewed as relatively stable structures which serve as the framework within which instructional activities must be planned and carried out; the instructional plans (i.e. strategies) are treated as highly adaptive constructions whose selection and utilization is contingent upon pupil values, knowledge, and behavior. The foregoing concept of curricular/instructional organization is a component of the *knowledge base* undergirding the present document. This concept entails the expectation that instructional plans and implementation will be consistent

* It should be noted that the absence of agreement among teachers on such criteria is merely evidence of the need for much greater investments in development of the professional bases, where the development efforts are conducted under conditions *necessary to* continuing advance.

with the curricular goals, rules, and assumptions.

It is, of course, the case that an indeterminate number of different professional problems can be identified without exhausting a given competence class. The only limits are imposed by one's creative impulse in conjunction with a judgment of utility.

Illustrated Dimensions of Professional Problem Construction

It is reasonable to expect that an experienced and competent professional will be able to perceive and resolve problems that are beyond the scope of most novice members of the profession. Similarly, it seems reasonable to expect that a novice professional, or an advanced preparatory professional, will be able to perceive and resolve problems that a person just beginning his professional preparation cannot handle. If we are to avoid making the demand that a preparatory teacher do something which he has not yet acquired the ability to do, then we must somehow adjust our expectations to an appropriate level. If professional problems are used as basic curricular units in teacher preparation, then we must develop problems which are professionally significant, challenging, and also within reach of the preparatory teacher.

Certain dimensions, or variables, seem to be particularly relevant in the development of such professional problems for teacher preparation. Examination of some of these dimensions follows. Aspects of each dimension will be explicated, and then illustrated by appropriate professional problems. The dimension labels are a bit awkward, but the associated descriptions and illustrative problems should provide sufficient clarification.

The Simulation - Real Dimension

With an Illustrative Problem in Strategy Construction

Particularly in the beginning stage of development, significant aspects of perceiving and solving professional problems can be brought to a level of deliberate awareness through the use of simulated environments. For example, a simplified set of curricular goals and rules might be constructed to simulate a relatively "closed" school environment; these would be given as part of the data component of a problem. The data component might also specify an instructional objective and a description of a particular pupil state; the preparatory teacher would be confronted with the task of constructing an instructional strategy that is compatible with all the given (simulated) circumstances.

A companion problem, in a simulated school setting, might be one whose curricular goals and rules encapsulate the concept of an "open" environment. An illustrative problem of this type is displayed on the immediately following pages; *Professional Problem A.*

At a later point of professional preparation, the data component of similar problems would consist of descriptions of real school circumstances; these descriptions would be developed and validated by the preparatory teacher.

PROFESSIONAL PROBLEM A

PURPOSE: FORMULATION OF AN ADEQUATE INSTRUCTIONAL STRATEGY

This is a problem in instructional strategy construction within a simulated school environment in which there is a high degree of pupil responsibility and independence. It should be noted that the specified curricular rules are not proposed as desirable rules.

DATA COMPONENT:

I. Assume that the following *curricular-level statements* have been accepted by both pupils and teacher.

[A] *CURRICULAR GOAL:*

Each pupil is to develop critical thinking ability,

where *critical thinking ability** is demonstrated by proficiency in judging whether:

1. A statement follows from the premises.
2. A statement is an assumption.
3. An observation statement is reliable.
4. A simple generalization is warranted.
5. A hypothesis is warranted.
6. A theory is warranted.
7. An argument depends on an ambiguity.
8. A statement is overvague or overspecific.
9. An alleged authority is reliable.**

*This definition is borrowed from Robert H. Ennis, A Definition of Critical Thinking, *The Reading Teacher*, 17: 599-612; May, 1964.

**Professor Ennis has proposed a *range definition* for critical thinking; that is, he has delineated the various sorts of concrete realizations of the concept "critical thinking." These realizations will be referred to as the (nine) *aspects* of critical thinking.

(RE: PROFESSIONAL PROBLEM A)

[B] *CURRICULAR RULES*

Substantive Rules

[1] Instructional activity will be organized as a sequential set of *strands;*

[2] Each instructional strand has as its objective one aspect of the range definition of critical thinking.

[3] The instructional strands will be ordered in a manner corresponding to the ordering of aspects of the range definition of critical thinking; i.e. (1) *judging whether a statement follows from the premises,* (2) *judging whether a statement an assumption,...,* (9) *judging whether an alleged authority is reliable.*

Regulative Rules

[1] Acceptance of the goal of any strand by the pupil is a necessary condition to participation within that strand;

[2] Any statement by the teacher is subject to appraisal by the pupil;

[3] Any statement by a pupil is subject to appraisal by the teacher or by other pupils;

[4] Appraisal of a statement will be judged adequate if it satisfies the conditions specified by the cumulative set of goals of all preceding strands;

[5] A statement proposing termination of an activity or initiation of a new activity may be introduced on any occasion by either a pupil or the teacher;

[6] Concurrence of independent judgments of all participants (teachers and pupils) will be the grounds for judging whether an appraisal is adequate;

[7] If concurrence cannot be attained, then an *arbitrator* will be selected from among the pupils by secret ballot of the pupils.. His decision will be binding on both pupils and teacher.

(RE: PROFESSIONAL PROBLEM A)

[C] *COMMON PUPIL CHARACTERISTICS*

It is assumed that all pupils participating under the specified curricular goals and rules satisfy these characteristics:

Affective Characteristics

The pupil places a high value on:

- responsible freedom of the individual;
- improvement of ways of thought and action;
- reason

Cognitive Characteristics

The pupil satisfies all conditions of Piaget's *formal operations* stage of development; these include:

- capacity for abstract thought; that is, "he can be guided by the *form* of an argument or situation, and ignore the *content*;"
- ability to use the logics of classes, relations, and propositions;
- ability to think in terms of probability.

(RE: PROFESSIONAL PROBLEM A)

II. Assume that the following *instructional-level statements* define the situation in which the teacher must act:

D. *PUPIL STATE*

It is assumed that the following statements are valid, and partially describe each pupil state:

[1] The pupil comprehends the logical terms: premise, conclusion, logically valid, logically invalid, element, set, class, proposition, and, or, implies, true, false, necessary condition, sufficient condition;

[2] The pupil has attained the objective of the first instructional strand; i.e., *proficiency in judging whether a statement follows from the premises.*

E. *INSTRUCTIONAL OBJECTIVE*

The pupil will be able to judge whether a statement is an assumption.

GOAL COMPONENT

[1] Construct an instructional strategy which you believe will be effective within the professional situation defined by the preceding curricular-level statements and instructional-level statements.

[2] Justify the claim that the constructed strategy is an *adequate* strategy.

The Analysis - Synthesis Dimension

With Illustrative Problems in Value Ascription and Value Improvement

Values, plans, or ways of action are often easier to analyze (and describe) than to synthesize, or construct, as an original creation. Such analysis or description, where attended by evidence of adequacy, can provide a useful introduction to the real-school setting. As more advanced stages of professional development are reached, however, one would expect that certain aspects of analytic/descriptive activity would be partially replaced with synthesizing, or creative construction, types of activity. As greater professional responsibility is assumed, the range of synthesizing endeavors also will be extended. For example, one might expect a preparatory teacher nearing the certification stage to build his own instructional strategies rather than merely describe those of a supervising (certified) teacher.

Professional problems demanding either analytic/descriptive activity or creative construction on the part of the preparatory teacher can be built at foundational, planning, or implementation levels. Two illustrative problems follow. *Professional Problem B* requires the preparatory teacher to analyze the behavior of practicing professionals, and ascribe the values which seem to explain their teaching behavior. A problem of this sort would be resolved by the preparatory teacher as a first step in understanding the constraints associated with his field situation.

Professional Problem C requires that the developing teacher -- presumably in a more advanced stage -- engage in an effort to improve an existing set of professional value postulates. Reconstruction of this kind demands rather sophisticated conceptual tools combined with creative ability.

PROFESSIONAL PROBLEM B

PURPOSE: ASCRIPTION OF PROFESSIONAL VALUES

DATA COMPONENT:

[1] Given the certified teachers with whom you are directly associated in the real school setting [i.e. the field situation to which you have accepted assignment];

[2] Assume the concept of *Value* as proposed by Nicholas Rescher in *Introduction to Value Theory*.

GOAL COMPONENT:

[1] Ascribe a set of major *Values* to the specified set of teachers such that the following conditions are satisfied:

a. The values govern the professional action of all members of the specified set of certified teachers;

b. The value ascription is based upon evidence of at least two kinds:

(1) The grounds on which teacher action is rationalized;

(2) The pattern of teacher action.

[2] Support the claim that the ascription of values is reasonable.

PROFESSIONAL PROBLEM C

PURPOSE: IMPROVEMENT OF THE PROFESSIONAL VALUE SYSTEM

DATA COMPONENT:

[1] Given the (agreed upon) *conditions of adequacy* for judging any proposed set of Value postulates:

a. The statements must be internally consistent;

b. The statements must be compatible with the pragmatic base and knowledge base;

c. The statements must include at least two distinct subsets:

(1) Statements which specify the nature and scope of professional responsibility;

and (2) Statements which specify the ways in which the professional may act, or must act, in fulfilling his responsibilities;

d. The set of statements must be applicable to all classes of professional action.

[2] Given the proposed professional Value postulates for Teachers:

If a teacher is acting within the professional domain, then he is obligated to:

P[1] *Act in such a way as to promote change toward a more desirable pupil state;*

P[2] *Perform all professional action under the conditions of rational action, critical analysis, and the scientific model;*

P[3] *Act in such a way as to allow the pupil freedom to react to the teacher's action under the conditions of rational action, critical analysis, and the scientific model;*

P[4] *Make independent judgments of all professional action within his performance domain; and*

P[5] *Improve all professional action within his performance domain.*

GOAL COMPONENT:

[1] Evaluate the proposed professional Value postulates against *at least* the specified (previously agreed upon) conditions of adequacy;

[2] If weaknesses have been identified, then proposed a set of Value postulates which you believe constitute an improvement over the proposed set. Justify that belief.

The Selection - Construction Dimension

With an Illustrative Problem in Judging Values

Although this dimension overlaps the preceding analysis-synthesis dimension, it seems to merit attention. A person just beginning preparation for membership in a mature profession is not likely to attempt immediately the reconstruction of the very bases of that profession. It is more probable that he will attempt to comprehend, critically analyze, and judge the existing conceptual framework, norms, and modes of action; he very rarely would be at the level of sophistication necessary to construct, or substantially reconstruct, aspects of the governing principles.

Even in teaching--a profession whose bases are not well developed -- a beginner normally would not be at the level of sophistication necessary to create, for example, an improved code of professional ethics. He would, however, be expected to comprehend the code of ethics or value postulates which govern the professional action of teachers. He also would be expected to tentatively accept or reject the ethical norms or value postulates - and to justify his decision. This sort of action - i.e. *selection* (acceptance or rejection of available alternatives) - is illustrated in the following illustration, *Professional Problem D.*

For the *construction* aspect of the dimension, *Professional Problem C* -- already displayed on the preceding page -- will suffice.

PROFESSIONAL PROBLEM 0

PURPOSE: RATIONAL CHOICE OF PROFESSIONAL VALUES

DATA COMPONENT:

Given the proposed professional Value postulates for teachers:

If a teacher is acting within the professional domain, then he is obligated to:

P[1] *Act in such a way as to promote change toward a more desirable pupil state;*

P[2] *Perform all professional action under the conditions of rational action, critical analysis, and the scientific model;*

P[3] *Act in such a way as to allow the pupil freedom to react to the teacher's action under the conditions of rational action, critical analysis, and the scientific model;*

P[4] *Make independent judgments of all professional action within his performance domain; and*

P[9] *Improve all professional action within his performance domain.*

GOAL COMPONENT:

[1] For each of the five Value postulates proposed, [illegible] your decision to accept or reject.

[2] Justify each decision.

[3] Accept of reject the complete set of postulates.

[4] Justify the decision to accept or reject the complete set of postulates.

'Variation of Standards' Dimension

With Illustrative Problems in Building Instructional Objectives

Improvement of a professional teacher depends, in part, upon his disposition to acquire new concepts and principles from relevant disciplines and technological fields. For example, sociology might provide information enabling the teacher to develop greater understanding of classroom social relations; psychology might yield variables that are useful in making more comprehensive diagnoses of the pupil state; logic and semantics might create greater awareness of the sources of communication problems, and so forth. Improvement of a teacher also depends, in part, upon his ability and disposition to utilize new - or previously available, but not utilized - advances of the professional bases of teaching.

As a preparatory teacher slowly acquires the theoretical, technological, and professional tools of his profession, it becomes both reasonable and desirable to apply more rigorous and comprehensive standards in judging the quality of his performance. For example, the quality of instructional planning and teacher-pupil interaction expected in an initial instructional experience is quite different from the quality that would be demanded in some later instructional experience which will constitute (partial) grounds for certification.

To illustrate how the *data component* and *goal component* may remain the same over a beginning stage and certification stage, while the *standards of performance* increase in scope and rigor, an examination of *Professional Problem E* and *Professional Problem F* will be illuminating. These problems are displayed on the following pages.

PROFESSIONAL PROBLEM E

PURPOSE: CONSTRUCTION OF AN ADEQUATE SET OF INSTRUCTIONAL OBJECTIVES

This professional problem and standards are designed for use in the beginning stage of teacher preparation.

DATA COMPONENT:

[1] It is assumed that you have accurately described, and accepted, the curricular goals, curricular rules, and common pupil characteristics that constitute constraints under which instructional activities are conducted in your field situation;

[2] There is a specified set of pupils for whom you have accepted instructional responsibility;

[3] Your instructional responsibility is bounded by a specified goal which is compatible with the ongoing curricular/instructional enterprise, and is judged by your supervising teacher to be appropriate to the specified set of pupils.

GOAL COMPONENT:

Construct an adequate set of instructional objectives appropriate to both the specified curricular framework and the specified set of pupils.

Standards for Judging Performance

The proposed set of instructional objectives will be judged adequate if and only if:

a. each statement of the set is framed in *operational terms*;

b. the set of statements is compatible with the curricular goals, curricular rules, and pupil state.

PROFESSIONAL PROBLEM F

PURPOSE: CONSTRUCTION OF AN ADEQUATE SET OF INSTRUCTIONAL OBJECTIVES

This professional problem and standards are designed for use in the certification stage of teacher preparation.

DATA COMPONENT:

[1] It is assumed that you have accurately described, and accepted, the curricular goals, curricular rules, and common pupil characteristics that constitute constraints under which instructional activities are conducted in your field situation;

[2] There is a specified set of pupils for whom you have accepted instructional responsibility;

[3] Your instructional responsibility is bounded by a specified goal which is compatible with the ongoing curricular/instructional enterprise, and is judged by your supervising teacher to be appropriate to the specified set of pupils.

GOAL COMPONENT:

Construct an adequate set of instructional objectives appropriate to both the specified curricular framework and the specified set of pupils.

Standards for Judging Performance

The proposed set of instructional objectives will be judged adequate if and only if:

a. each statement is framed in *operational terms;*

b. each operational statement is explained by the set of curricular goals in conjunction with a comprehensive map of the universe of situations in which those goals are to be realized;

c. the set of statements is compatible with the specified curricular rules and the pupil state;

d. the set of statements is internally consistent;

e. for each statement, there is an indeterminate number of pupil tasks that can be constructed.

The 'Closed-Open' Dimension

With Illustrative Problems for the Field Experience

A beginner in professional preparation normally possesses neither an adequately developed conceptual network nor the patterns of action that characterize a mature member of the profession. These characteristics enable him to perceive independently relevant problems, judge their significance, set priorities, and create and test potential solutions. The beginner requires some experiential orientation as he attempts to develop a cognitive map of a new domain. It might be enlightening, for example, if he is given the opportunity to examine, judge, and attempt to resolve problems of professional significance. Since these initial problems are likely to include relatively narrow conditions in both the data and goal components, and the performance standards probably are made explicit, they might be viewed as relatively *closed*. That is, the degree of freedom of the preparatory teacher is considerably restricted by comparison to that of a practicing professional. All of the preceding illustrative problems might be termed *relatively closed*, as they are stated.

As a person moves into the more advanced stages of professional preparation, it seems reasonable to expect that he has acquired the 'know that,' 'know how,' values, and patterns of action characteristic of competent members of the profession. He should have acquired the independence which frees him from the necessity of guidance from someone else who "knows." Professional problems at the advanced stages of development might be either (a) framed by the preparatory teacher on his own, or - if necessary - (b) framed (by a teacher educator) in such fashion as to be of broad scope,

with quite sketchy problem conditions that provide only loose pointers as to the range of responsibility. Such problems as these might be termed *open*, or *relatively open*.

The foregoing notions will be illustrated by professional problems which function as organizers for field experiences. The two illustrative problems displayed on the following pages, translate into operational terms: (a) curricular and instructional competencies, (b) implementation competencies, and (c) certain aspects of the validation and improvement competencies.

Professional Problem G is designed as the organizer for the field experience of a preparatory teacher at the certification stage, and is relatively 'open.' *Professional Problem H* is designed as the organizer for the initial field experiences of a preparatory teacher, and is relatively 'closed.' Professional Problem G cashes in all the competence classes made operational by Problem H, but does so in a manner that demands appeal to the professional bases for guidance rather than appeal to the directives of a mentor. The standards of performance need not be made explicit at more advanced stages of professional development; this is the case since it is assumed that preparatory teachers nearing certification have subscribed to, and have learned to act in a manner consistent with, the common professional paradigm represented by the pragmatic, knowledge, and value bases. It is a corollary of professional enterprise that all practitioners know, and agree upon, their basic principles and evaluative standards.

PROFESSIONAL PROBLEM C

PURPOSE: CURRICULAR/INSTRUCTIONAL PLANNING AND IMPLEMENTATION

This professional problem is designed to guide the certification stage field experience. It is relatively open, since it contains only a few reminders for a preparatory teacher assumed to have acquired the independent problem-identification and problem-solving dispositions and abilities which characterize competent professionals.

DATA COMPONENT:

[1] Given the real-school setting to which you have accepted assignment for your certification-level field experience;

and [2] Given the set of pupils for whom you have accepted teaching responsibility;

and [3] Given the pragmatic base, knowledge base and value base which constitute the grounds for judging your teaching action.

GOAL COMPONENT:

[1] Document and assess the foundational and curricular bases of action in defensible fashion;

[2] Conduct the repeating cycles of (a) instructional claim formulation, and (b) instructional claim testing in defensible fashion, and with adequate documentation.

PROFESSIONAL PROBLEM H

PURPOSE: CURRICULAR/INSTRUCTIONAL PLANNING AND IMPLEMENTATION

This professional problem is designed to guide the beginning stage field experience. It is relatively closed, since it identifies a number of specific sub-problems, makes specific standards explicit, and narrows the range of permissible action to a considerable extent.

DATA COMPONENT:

It is assumed that the specified goals (see *goal component*) will be achieved within the context of the particular real-school classroom to which you have accepted assignment.

Your field experience should be divided into two sequential aspects: [1] a *curricular* aspect and [2] an *instructional* aspect.

[1] Your first responsibility, serving as an introduction to your classroom situation, will be to articulate significant aspects of the curricular organization. Your role will be that of observation and description. Written curricular materials, the supervising teacher or teachers, or pupils may provide relevant information.

[2] You should then assume an instructional role in very limited situations. These situations should be quite "simple" in at least two ways: (1) the instructional responsibility should be limited to a single pupil; or, in circumstances which demand interaction among different pupils, a very small group of pupils; (2) the instructional objectives should have limited scope in order to make the planning and interactive activities manageable for a beginning teacher.

The preparatory teacher should work out, under the guidelines of the supervising teacher, planning and interactive arrangements which are appropriate to the existing curricular organization, and can be justified as desirable for the pupils involved. All instructional plans, of course, must be approved by the supervising teacher.

(Re: Professional Problem H)

GOAL COMPONENT:

[1] DESCRIPTION OF CURRICULAR ORGANIZATION

Set forth a set of statements which constitutes an abstract representation of the curricular organization which governs the instructional/learning activities. The statements should be framed as three distinct subsets:

A. a set of statements which delineates the curricular *goals*;

B. a set of statements which delineates the major curricular *rules*, and which includes at least two distinct components:

- substantive rules
- regulative rules

C. a set of statements which delineates the assumptions as to the *pupil characteristics* necessary to fruitful participation in the curricular enterprise.

[2] EVALUATION OF CURRICULAR ORGANIZATION

Evaluate the basic curricular organization which governs the instructional/learning activities in the real school setting. The statements of the evaluation should be framed in a format which includes at least these distinct aspects:

A. Compare these *assumptions about pupil characteristics* against the *description of common pupil characteristics* which you have developed and tested.

B. *Identify important weaknesses* which you believe exist in the curricular rules with reference to the goals. Support these beliefs on the basis of psychological or educational propositions which you judge to have reasonable empirical substantiation.

C. Analyze and judge the relation between the *curricular rules and goals* and the *professional value postulates* to which you have subscribed.

(Re: Professional Problem H)

3. FORMULATION OF ADEQUATE INSTRUCTIONAL PLANS

Note: It is assumed that all instructional-level statements and actions will be compatible with the curricular organization.

A. Develop a set of *instructional objectives* such that the set satisfies these conditions:

(1) each statement of the set is framed in *operational* terms;

(2) the set of objectives provides a partial explication of the goal;

(3) each operational objective is capable of generating an indeterminate number of tasks.

B. Set forth a *set of statements which describe assumed attributes of the specified pupils.* These statements should satisfy the following conditions:

(1) the attributes should be directly relevant to the operational objectives or the strategy statements; for example, important prerequisite concepts, comprehension of technical terms, etc.

(2) the statements should be framed in operational terms.

C. Formulate an adequate *instructional strategy* which you believe is likely to be effective under the existing circumstances:

(Re: Professional Problem H)

4. IMPLEMENTATION AND EVALUATION OF INSTRUCTIONAL PLANS

A. (1) *Test the factual validity* (F-validity) *of the statements of the pupil-state component* with reference to *each* pupil of the specified set.

(2) If the statements are not all F-valid with reference to each pupil, then make adjustments which satisfy some combination of these conditions:

a. Remedial work with pupils for whom the assumptions are not F-valid;

b. Modification of the pupil-state assumptions [this may also entail modification of other components as well];

c. Eliminate some pupils from the initial set.

B. *Invoke the instructional strategy* in the presence of the associated objectives and specified pupil set. Teacher action should be consistent with the curricular organization and the professional value postulates.

C. *Analyse teacher-pupil interaction* under a specified plan. All occasions of instruction should be taken into account by the analysis. The procedures for analysis should include at least these considerations:

(1) Correspondence between teacher actions and the intended strategy;

(2) Effectiveness of the teacher message sets. Examine the relation between the teacher message and the pupil response. Note especially misunderstandings caused by teacher imprecision, inaccuracy and lack of coherence;

(3) Adequacy of teacher reception of pupil messages. Note especially filtering out significant information and misinterpretation. Note points where the teacher needed further clarification, but failed to ask for clarification.

(Re: Professional Problem H)

D. *Adjust or replace the instructional strategy* in response to new information as to the pupil state or perceived effectiveness.

E. On at least some occasion *test the P-validity of the* assertion that each pupil has attained the conditions delineated by the *operational objectives.*

Summary Statements

Major premises and conclusions of *Part Three* are summarized by the following statements:

[1] Adequate articulation of significant components of the pragmatic, knowledge, and value bases of professional teaching is necessary to both (a) preparation for professional teaching, and (b) assessment of professional competence in teaching;

[2] It is fruitful to treat professional teaching as a problem-perceiving and problem-solving enterprise;

[3] Every competence class should be realized in some professional problems of teacher preparation;

[4] Professional problems can, and should, be deliberately constructed in such fashion as to be appropriate to the developmental level of the preparatory teacher;

[5] Adequate preparation for professional teaching must include acquisition of the theoretical and technological knowledge of foundational fields and also the professional knowledge and values that are necessary to both (a) problem-perceiving and problem-solving, and (b) continuing strengthing of that knowledge and values.

Part Four

ASSESSMENT OF PROFESSIONAL COMPETENCE IN TEACHING

Nature of the Assessment Problem

The central issue in judging whether a teacher is professionally competent is easily identified. It can be reduced to one simple question: *Does the teacher fulfill the concept of 'professional competence?'*

The meaning of 'professional competence' was established previously. *A teacher is professionally competent* if and only if *he characteristically acts in a manner consistent with his professional bases; and, he does so for all relevant classes of teacher action.* The relevant classes of action were defined by the comprehensive classification of teacher action; more specific explication was provided under the label of 'competencies.' The pragmatic, knowledge, and value bases provide the criteria for determining whether an act is permitted, obligatory, forbidden, or value-free in any given situation; the bases also provide the criteria for determining the way in which an act is to be performed.

The problem of determining whether a teacher is professionally competent, then, is essentially a problem of judging whether certain patterns of action, and associated rationalizations, correspond to some interrelated system of values, aims, principles, rules, and standards to which all members of the profession have subscribed. To find a satisfactory solution to this problem is not a simple matter. Its solution cannot be expressed as a set of algorithms for processing quantified data.

The purpose of the remaining sections is to develop a defensible practical approach to the assessment of professional competence in teaching.

Analysis of Ways of Assessment

The 'Prescriptive' and 'Explanatory' Approaches

Two fundamentally different approaches to the assessment problem warrant examination. One of these will be called the *prescriptive* approach; the other will be called the *explanatory* approach.

The *prescriptive* approach is quite familiar since it is widely applied in assessing technical competence in various industrial and military activities, and has been applied to teaching by many educational technologists. Characteristic features of the prescriptive approach are: (1) relevant performances are identified in operational terms, i.e. in terms of 'test conditions' and 'response conditions;' (2) standards of adequate performance are specified in advance; and (3) the test conditions are under the deliberate control of the agents responsible for assessment of competence. In the prescriptive approach, competence is judged on the basis of performance which is executed *on demand*.

The *explanatory* approach is not a familiar way of assessing the competence of a teacher. It is proposed here as a natural out growth of the concept of professional competence that is fundamental to all preceding discussion. The term 'explanatory' is used here in the scientific sense. That is, a theoretical system is an adequate explanatory system if its various implications correspond to relevant empirical occurrences; a generalization 'explains' observed behavior if the statements describing that behavior can be deduced from the generalization.

Characteristic features of the explanatory approach are: (1) the pragmatic, knowledge, and value bases of the teaching profession function as a potential explanatory system; (2) the pattern of teaching action, in

conjunction with the justifications of action, constitute the phenomena to be explained; (3) relevant performance occurs in relatively uncontrolled professional settings, i.e., performance is *not* executed *on demand* of an evaluating agent. If the professional bases adequately explain the teacher's pattern of professional action (including the way in which the action is rationalized), then the teacher is judged to be 'competent.' If the professional bases do not adequately explain the teacher's professional behavior, then the teacher is judged to be 'not professionally competent.'

Analysis from the Validity Viewpoint

Two crucial requirements must be satisfied by a *valid* method of assessing professional competence in teaching: (1) the method must lead to a judgment as to whether a teacher fulfills the defining conditions of a 'competent professional,' and (2) the method must demand that the judgment be made on the basis of evidence obtained under circumstances such that the teacher has had the *opportunity* to satisfy the defining conditions of 'professional competence.' The validity of the prescriptive and explanatory approaches will be examined and judged against these two requirements.

The *prescriptive* approach demands that the teacher being judged allow his professional action - during the assessment period - to be governed, in part, by the directives of an evaluating agent or agency. This demand contradicts the concept of a competent professional as one whose professional action is governed by his professional bases.

The very characteristics that make the prescriptive approach so useful for a wide range of purposes also cause it to be unsuitable for assessment of competence in a professional field. If applied to teaching, the prescrip-

tive approach does not allow the teacher the *opportunity* to satisfy the defining conditions of 'professional competence.' For example, both the performance situation and the act to be performed are specified for the teacher; this ignores the problem-perceiving and priority-setting aspects of professional enterprise. Moreover, if the standards are specified in advance by some directive agent or agency, there is no test of the teacher's disposition to establish, and operate under, standards which he derives from the professional bases. Also, the contextual nature of professional action is ignored; e.g. there is not a sensitivity to the fact that - in professional enterprise - the way in which an act ought to be performed is contingent upon the way other acts have been performed.

The *explanatory* approach to assessment of professional competence in teaching allows the teacher the opportunity to fulfill the concept of 'professional competence.' Data are collected which are relevant to the classes of actions performed, the way in which they are performed, and the grounds on which the actions are rationalized. The interrelations among the various acts are observed and described. These descriptions of teacher action, including the grounds cited by the teacher, are then examined to determine whether the pattern of teacher action corresponds to the values, principles, rules, and standards which constitute the professional bases. If the pattern includes the various classes of action relevant to teaching, and that pattern of action does correspond to - i.e. is 'explained by' - the professional bases, then the teacher is judged professionally competent.

The *explanatory* approach seems to satisfy the two crucial conditions of validity in assessment of the professional competence of a teacher.

However, certain questions still remain as to reliability and practical aspects of its implementation.

Analysis from the Reliability Viewpoint

Reliability is a primary concern in the *prescriptive* approach to assessment of competence in teaching. Two aspects of reliability seem to be well satisfied by most applications of the method: (1) making the same judgment of a teacher's competence over different occasions of assessment, and (2) agreement among different judges on the same occasion of assessment. Although reliability is a virtue of the method, it is achieved at the expense of validity.

The *explanatory* approach has been developed with a primary concern for validity in assessment of professional competence in teaching. Although high reliability is desired, and believed attainable, some loss of reliability is preferred over loss of validity. Reliability of the explanatory method depends upon two assumptions: (1) the professional behavior pattern of a competent teacher is stable over different classes of action and different occasions, and (2) competent professionals, who operate under common professional bases, will have little difficulty in differentiating others who characteristically operate under those bases from those who do not.

The first assumption is a logical consequence of the definition of 'professional competence.' It makes the behavior pattern of a teacher relevant to the assessment; the particular set of acts and occasions on which the pattern is developed is not relevant. The second assumption is a bit more worrisome, for it entails reliance on the subjective judgment

of competent professionals. The reason this seems so troublesome is that teachers, except for a few very small groups, have never operated under common professional bases. Consequently, their subjective judgments of competence have indeed been highly inconsistent. However, scientists who do operate under the values, principles, and standards of a common scientific paradigm would have little difficulty in detecting an interloper who does not operate under the same paradigm; the subjective judgments of a group of scientists would be quite consistent in this matter. The same can be said for mathematicians, experimental psychologists, even physicians and dentists. It might be true of teachers as well, but only if there is commitment to common professional bases.

The absence of commitment to common professional bases would do more than yield unreliable assessment under the *explanatory* approach. It would make useless any kind of attempt to assess *professional competence* in teaching.

Practical Aspects of Assessing Professional Competence in Teaching

Although the prescriptive approach cannot yield valid assessments of professional competence in teaching, it constitutes a sound - even necessary - approach to judging the performance during the developmental stages of teacher preparation. This use of the prescriptive approach to assessment complements the use of professional problems as basic curricular units - as proposed in *Part Three*. That is, professional problems of the 'relatively closed' type also fulfill the requirements of an adequate assessment unit under the prescriptive method of evaluation.

Moreover, by using professional problems of an increasing degree of 'openness' for instruction and evaluation, two purposes are achieved. First,

the additional degrees of freedom encourage the preparatory teacher to gradually assume the full independent responsibility of a professional. Second, as the assessment unit (i.e. professional problem) becomes more open, then the method of assessment is gradually transformed from the *prescriptive* approach to the *explanatory* approach.

The explanatory approach is a valid way of assessing professional competence in teaching. In implementing this method of assessment, the professional problem becomes an organizing unit for making and interpreting observations. The problems perceived by the teacher, judgments of significance, and standards of acceptable solution all constitute relevant data. The competence classes provide a framework for making and interpreting observations of relations among the various problems which the teacher tackles.

Reliability of assessment under the explanatory method, assuming the behavior pattern of the teacher under assessment is relatively stable, is influenced by three major factors: (1) level of development of the professional bases, (2) level of development of the certified professionals responsible for assessing competence, and (3) sampling error.

If the quality of assessment is to be made adequate, or improved, the place to begin is with substantial investment in improvement of the pragmatic, knowledge, and value bases. Efforts toward improvement should have as their immediate, and interrelated, foci: (a) adequate articulation of primary components of each base, (b) critical analysis and acceptance or rejection by relevant sectors of practitioners, (c) acquisition of at least the tools of semantics, logic, value theory, theory of action, and philosophy of science, (d) establishment of comprehensive, coherent, and rigorous complexes of research and development, where conceptual investigation has highest priority. The quality of assessment is limited by the

quality of the professional bases in which it is grounded.

Given adequate professional bases, the level of development of certified professionals, relative to those bases, would still be a determinant of the quality of assessment. There is no choice but to accept the judgments that the individual evaluators have the ability to make. What we can expect - and encourage - however, is that the teachers responsible for assessment will themselves fulfill the *improvement* condition of a competent professional, and that this improvement will include the tools of assessment.

If there is a serious intent to improve the quality of judgments made in assessing professional competence in teaching, the recommendations of the preceding paragraphs identify where to focus the efforts. The potential gain from investments placed elsewhere will be trivial in comparison.

No matter how great the advances of our methodology, however, the outcome of an assessment of competence is necessarily a probabilistic and not an absolute judgment. It is evident that the judgment as to whether the professional bases *explain* the pattern of teacher action must be made on the basis of observed samples of action of the teacher under assessment. The frequency and scope of these samples is partly a matter of the resources available to support the evaluative activity, and partly a matter of confidence that the evaluator has in his value judgment. There is no way to prove - with absolute certainty - that the claim that 'John is professionally competent' is true.

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